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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,616	09/01/2005	Kurt Hess	1867-0081	9006

7590 06/26/2007  
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111 Monument Circle, Suite 3250  
Indianapolis, IN 46204-5109

EXAMINER
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TON, TRI T

ART UNIT	PAPER NUMBER
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2877

MAIL DATE	DELIVERY MODE
06/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/518,616	HESS ET AL.
	Examiner	Art Unit
	Tri T. Ton	2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 09 April 2007.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-7, 10-13, 16, 17 and 19-21 is/are rejected.  
 7) Claim(s) 8, 9, 14, 15 and 18 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 09 April 2007 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

1. Applicant's response to amendment filed on 04/09/2007 has been entered.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

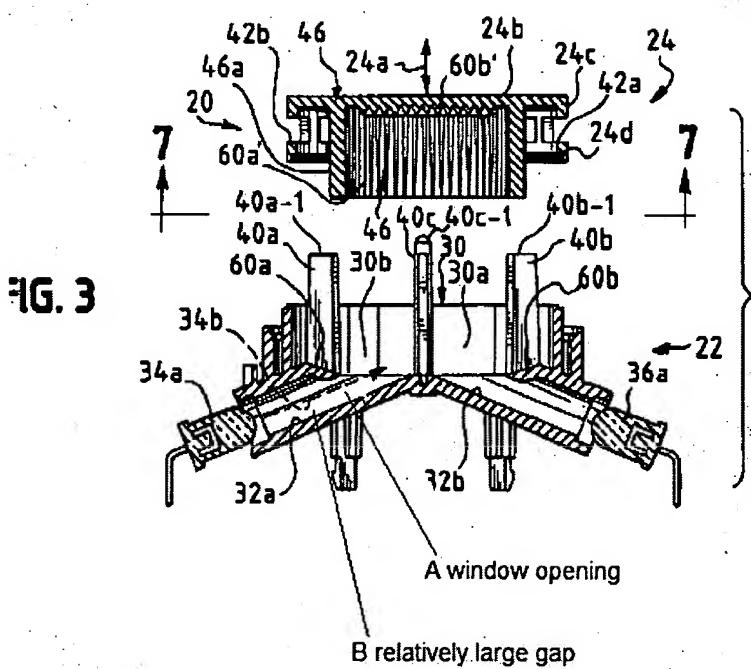
3. Claims 1, 2, 4, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view of Igarashi et al. (U.S. Patent 5,021,677). Hereafter, "Shoaff" and "Igarashi".

Regarding Claim 1, Shoaff teaches a sensor arrangement with at least one light source and one light receive (Figure 3, elements 34a, 36a); a housing having an elongated shape (Figure 3, element 32a) and a small window opening that is nearer the measuring chamber than a rear part of the housing (Figure 3, element A) and, wherein the at least one light source and light receiver is are-arranged in a-the rear part of the housing (Figure 3, elements 34a, 36a), so that

between the window opening of the housing and a light-penetrated optical surface of the at least one light source and light receiver a relatively large gap is formed (Figure 3, element B).

Regarding Claim 21, Shoaff teaches a sensor arrangement with at least one light source and one light receiver (Figure 3, elements 34a, 36a); a plurality of housings, each corresponding to one of the at least one light source and the one light receiver, and having an elongated shape (Figure 3, elements 32a, 32b) and a small window opening that is nearer the measuring chamber than a rear part of the housing (Figure 3, element A), and wherein each of the at least one light source and light receiver is arranged in the rear part of the corresponding housing (Figure 3, elements 34a, 36a), so that between the window opening of the corresponding housing and a light-penetrated optical surface of the at least one light source or light receiver a gap is formed, the gap is greater than the diameter of the optical surface (Figure 3, element B).

However, in claims 1 and 21, Shoaff does not teach a labyrinth system with screens arranged on the periphery of the measuring chamber. Igarashi teaches a labyrinth system with screens arranged on the periphery of the measuring chamber (column 3, lines 59-62), (Figure 7, element 75). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff by having a labyrinth system in order to “prevent the light from entering into the chamber from outside”.



Regarding Claim 2, Shoaff teaches the gap being greater than the diameter of the optical surface (Figure 3, elements B, 34a).

Regarding Claim 4, Shoaff teaches the window opening of the housing being enclosed by a one-part frame (Figure 3, elements 30a, 46, 30, 30b).

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4. Claims 3, 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view of Igarashi et al. (U.S. Patent 5,021,677), and further in view of Rattman et al. (U.S. Publication No. 2002/0084907). Hereafter, "Shoaff", "Igarashi", and "Rattman".

Regarding Claim 3, Shoaff and Igarashi teach all the limitations of claim 1 as stated above except measuring chamber being delimited upward and the labyrinth system can be plugged onto the carrier disc from below. Rattman teaches measuring chamber being delimited upward, housing extending downward (paragraph [0023] lines 15-16), (Figure 1, element 24, Figure 5, Figure 6), and the labyrinth system being plugged from below (paragraph [0024], lines 13-15), (paragraph [0033]), (Figure 1, elements 34, 38, 40, Figure 5, Figure 6, Figure 8, elements 74, 76). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff and Igarashi by having the measuring chamber being delimited upward, housing extending downward and the labyrinth system being plugged from below in order to increase the flexibility for the assembly.

Regarding Claim 5, Shoaff and Igarashi teach all the limitations of claims 1 and 3 as stated above except for housing, apart from the window opening being open downward, and the floor of the component defining a lid for the housing. Igarashi teaches housing, apart from the window opening being open downward (Figure 1, element 70), and the floor of the defining a lid for the housing (Figure 1, element 86). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff and Igarashi by having the

measuring chamber being delimited upward, housing extending downward and the labyrinth system being plugged from below in order to have flexibility for part assembling.

Regarding Claim 6, Shoaff teaches the measuring chamber between a light exit and an entry side of the housing and screens opposite them, a compact, open scattering space is formed (Figure 3, elements 30a, 30b).

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view Igarashi et al. (U.S. Patent 5,021,677), further in view of Rattman et al. (U.S. Publication No. 2002/0084907) and further in view of Muller et al. (Patent No. 5,451,931). Hereafter, "Shoaff", "Igarashi", "Rattman" and "Muller".

Regarding Claim 7, Shoaff, Igarashi and Rattman teach all the limitations of claims 1, 3 and 6 as stated above except for polarization filters. Muller teaches polarization filters being included in smoke detector (column 4, lines 22-7), (Figure 3, elements 10, 5). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff, Igarashi and Rattman by adding the polarization filters in order to detect both small particles of smoke and large particles of smolder fires.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view Igarashi et al. (U.S. Patent 5,021,677), further in view of Rattman et al. (U.S. Publication No. 2002/0084907) and further in view of Nagaoka et al. (U.S. Patent No. 5,138,302). Hereafter, "Shoaff", "Igarashi", "Rattman" and "Nagaoka".

Regarding Claim 10, Shoaff, Igarashi and Rattman teach all the limitations of claims 1, 3 and 6 as stated above except for L-shaped screens and the gap between adjacent screens being a multiple of their thickness. Nagaoka teaches L-shaped screens and the gap between adjacent screens being a multiple of their thickness (column 4, lines 18-37), (Figure 3, elements 28, 29). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff, Igarashi and Rattman by having L-shaped screens and the gap between adjacent screens being a multiple of their thickness in order to prevent external light from entering into the “smoke supervisory zone”.

7. Claims 11, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view of Igarashi et al. (U.S. Patent 5,021,677), further in view of Rattman et al. (U.S. Publication No. 2002/0084907) and further in view of Meier et al. (U.S. Patent No. 5,939,994). Hereafter, “Shoaff”, “Igarashi”, “Rattman” and “Meier”.

Regarding Claims 11, 12 and 16, Shoaff, Igarashi and Rattman teach all the limitations of claims 1, 3 and 5 as stated above except for a multiple plug and insert technology. Meier teaches multiple plug and insert technology (column 1, lines 24-26), (column 2, lines 7-15). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff, Igarashi and Rattman by adding multiple plug and insert technology in order to increase the installation flexibility.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view of Igarashi et al. (U.S. Patent 5,021,677), further in view of Rattman et al. (U.S. Publication No. 2002/0084907), further in view of Muller et al. (Patent No. 5,451,931) and further in view of Nagaoka et al. (U.S. Patent No. 5,138,302). Hereafter, “Shoaff”, “Igarashi”, “Rattman”, “Muller” and “Nagaoka”.

Regarding Claim 13, Shoaff, Igarashi, Rattman and Muller teach all the limitations of claims 1, 3, 6 and 7 as stated above except for L-shaped screens and the gap between adjacent screens being a multiple of their thickness. Nagaoka teaches L-shaped screens and the gap between adjacent screens being a multiple of their thickness (column 4, lines 18-37), (Figure 3, elements 28, 29). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff, Igarashi, Rattman and Muller by having L-shaped screens and the gap between adjacent screens being a multiple of their thickness in order to prevent external light from entering into the “smoke supervisory zone”.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shoaff et al. (U.S. Patent No. 6,521,907) in view of Igarashi et al. (U.S. Patent 5,021,677), further in view of Rattman et al. (U.S. Publication No. 2002/0084907), further in view of Nagaoka et al. (U.S. Patent No. 5,138,302) and further in view of Meier et al. (U.S. Patent No. 5,939,994). Hereafter, “Shoaff”, “Igarashi”, “Rattman”, “Nagaoka” and “Meier”.

Regarding Claim 19, Shoaff, Igarashi, Rattman and Nagaoka teach all the limitations of claims 1, 3, 6 and 10 as stated above except for multiple plug and insert technology. Meier teaches multiple plug and insert technology (column 1, lines 24-26), (column 2, lines 7-15). It

would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Shoaff, Igarashi, Rattman and Nagaoka by adding multiple plug and insert technology in order to increase the installation flexibility.

***Allowable Subject Matter***

10. Claims 8, 9, 14, 15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. The following is a statement of reasons for the indication of allowable subject matter: No prior art found by the examiner that suggested modification or combination with the cited art so as to satisfy the combination of all the limitations in claim 8.
12. As to claim 8, the prior art of record taken alone or in combination, fails to disclose or render obvious "... the surfaces, which face each other, of the carrier disc and the floor of the component which forms the labyrinth system have corrugation." in combination with the rest of the limitations of claims 1, 3, 6, 7 and 8.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references of Shoaff et al. (U.S. Patent No. 6,521,907), Igarashi et al. (U.S. Patent 5,021,677), Rattman et al. (U.S. Publication No. 2002/0084907), Nagaoka et al. (U.S. Patent No. 5,138,302), Muller et al. (Patent No. 5,451,931) and Meier et al. (U.S. Patent No. 5,939,994) teach of various features similar to the claimed invention.

***Response to Arguments***

14. Applicant's arguments, see pages 10-17, filed on 04/09/2007, with respect to the rejection(s) of claim(s) 1-20 under 102(b) and 103(a) have been fully considered ~~but are not~~  
*persuasive. new grounds of rejection*

15. With respect to applicant's remarks regarding rejected claims 1, and 21 Shoaff disclosed a housing having an elongated shape (Figure 3, element 32a) and a small window opening that is nearer the measuring chamber than a rear part of the housing (Figure 3, element A) and, wherein the at least one light source and light receiver is are-arranged in a-the rear part of the housing (Figure 3, elements 34a, 36a), so that between the window opening of the housing and a light-penetrated optical surface of the at least one light source and light receiver a relatively large gap is formed (Figure 3, element B).

16. As to dependent claims 2-20, these claims should not be withdrawn from this rejection due to the rejection of claim 1.

***Fax/Telephone Information***

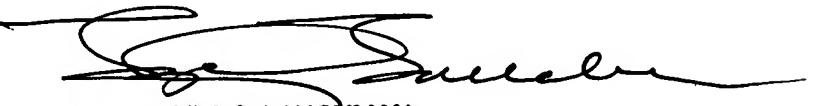
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri T. Ton whose telephone number is (571) 272-9064. The examiner can normally be reached on 10:30am - 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



June 8, 2007  
Examiner Tri Ton/SN



**LAYLA G. LAUCHMAN**  
**PRIMARY EXAMINER**  
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